

BASELINING ACQUISITION REFORM

Raymond W. Reig

Accumulating baseline data on the defense acquisition system is essential to gauging just how successful reform efforts have been so far. This article delineates the first step in that process.

Baselining, in and of itself, or as a step in continuous process improvement, has become an accepted modern management technique. Baselineing attempts to describe and capture the level of success of an existing system. Then the proposed system changes are applied to the existing system. The changed system should show a large enough increase in success over the existing system to warrant the cost and other expenses of implementation.

The Department of Defense (DoD) Acquisition Reform (AR) Program is a series of changes being incorporated into the DoD acquisition system. This article is an *ex post facto* attempt to baseline the DoD acquisition system prior to the introduction of reforms. In order to do that, we have to determine the effective date of the changes and the level of success of the then-existing DoD acquisition

system. Data is available to allow us to do just that.

The only point of this article is to identify and describe the first step in a three-step process called variously benchmarking, baselining, or part of continuous process improvement:

- **Step 1** is to identify a process, procedure, or product into which a series of changes or improvements are to be incorporated. Describe the current process, procedure or product as carefully as possible as regards its current effectiveness and efficiency. Establish a date for this baseline of the existing system.
- **Step 2** is to introduce the changes or improvements into the process, procedure or product.

Report Documentation Page				Form Approved OMB No. 0704-0188	
Public reporting burden for the collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to a penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.					
1. REPORT DATE 2000		2. REPORT TYPE		3. DATES COVERED 00-00-2000 to 00-00-2000	
4. TITLE AND SUBTITLE Baselining Acquisition Reform				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S)				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Defense Systems Management College ,9820 Belvoir Road,Fort Belvoir,VA,22060-5565				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION/AVAILABILITY STATEMENT Approved for public release; distribution unlimited					
13. SUPPLEMENTARY NOTES Acquisition Review Quarterly, Winter 2000					
14. ABSTRACT					
15. SUBJECT TERMS					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT Same as Report (SAR)	18. NUMBER OF PAGES 14	19a. NAME OF RESPONSIBLE PERSON
a. REPORT unclassified	b. ABSTRACT unclassified	c. THIS PAGE unclassified			

- **Step 3** is to measure the effectiveness and efficiency of the changed system, at some future date.

DISCUSSION

First we shall establish the effective date of acquisition reform. Table 1 chronologically lists most of the AR policy guidance and other major events of the program. It is important to note that we are seeking the first date that AR policies could be considered effective in the field; that is, the approximate date that AR initiatives began being implemented in a significant number of program management offices, and other field acquisition organizations. In the January/February 1997 *Program Manager* article, Doreen Harwood states that “A gap of as much as six months can occur between the time a statute or policy change is issued before it is received in the field” (Harwood, 1997, p. 41).

Colleen Preston, who was the designated change agent to direct the acquisition reform program, was appointed Deputy Under Secretary of Defense for Acquisition Reform (DUSD[AR]) in June 1993. This could be considered the start of acquisition reform, but certainly not the date that it first became effective in the field. Preston outlined the initial efforts of acquisition reform four years later (1997, pp. 25–26). I have inserted the dates of each action mentioned (Table 1).

We started off initially with following up on the Section 800 Panel recommendations [January 1993]... So we made that the initial thrust. For the first year we

practically did nothing but focus on that legislative effort day-to-day...Then we started working the Process Action Team (PAT)...We started with electronic commerce because that was critical... Then...Specification and Standards issue [June 1994] we took on as our second PAT...Then we looked at...contract administration, the procurement process and...oversight and review of the systems acquisition process [December 1994]. That particular PAT process was very difficult because it focused on the relationship between OSD and the Services.

Other milestones include the May 10, 1995, memorandum of William Perry, then Secretary of Defense, implementing the integrated product team (IPT) concept within DoD; the initiation of cost as an independent variable (CAIV) in December 1995; and the release of the new 5000 Series acquisition documents in December of 1996. Several other Milestone dates can be extracted from the chronology, but these show the time required for approaching effective AR implementation in the field. An alphabetical list of AR initiatives is in Figure 1.

Throughout the AR implementation period there was recognition that for this “cultural change” to be effective there had to be visible and continuous support from the top and available tools to understand what was desired. Again, the chronology shows us the many initiatives taken along these lines, such as: Paul Kaminski hosting a one-day DoD offsite (“Institutionalizing IPTs”) on July 20, 1995;

Table 1. Chronology of Acquisition Reform Events

Date	Event
February 1991	DoDD 5000.1 DoDI 5000.2 changed and reissued and 5000.2M promulgated.
January 1993	The Acquisition Law Advisory Panel (Section 800 Panel) findings reported to Congress. ^a
June 1993	Colleen Preston assumes the position as Deputy Under Secretary of Defense for Acquisition Reform. ^a
October 1993	Federal Acquisition Streamlining Act (FASA) of 1994 enacted. ^a
First quarter 1994	The Advanced Concept Technology Demonstration program initiated. ^b
February 1994	William J. Perry replaces Les Aspin as Secretary of Defense. ^a
February 1994	Secretary Perry issues “Acquisition Reform, A Mandate for Change.” ^a
March 1994	Secretary Perry attaches “Mandate for Change” to a letter to the leadership of the Department of Defense. ^a
June 1994	Preston authors an article, “Acquisition Reform—Making it a Reality,” in <i>Phalanx: the Bulletin of Military Operations Research</i> (June 1994, 27[2]). The article concludes with a section titled, “How Can You Participate?” ^a
June 1994	Secretary Perry issues memo: “Specifications and Standards—A New Way of Doing Business.” ^a
October 1994	Paul Kaminski sworn in as Under Secretary of Defense for Acquisition and Technology (USD[A&T]). ^a
c. 1994	DUSD(AR) position to report to USD(A&T). ^a
December 1994	The Oversight and Review of the Systems Acquisition Process PAT report published. ^b
December 1994	The Defense Acquisition Pilot Program launched as allowed by FASA.
March 1995	USD(A&T) establishes an IPT for the purpose of rewriting the February 23, 1991, 5000 Series documents. ^b
April 1995	Kaminski issues a memorandum, “Reengineering the Acquisition Oversight and Review Process.” First recommendations of the PAT team approved. ^b

(continued)

Date	Event
May 1995	Secretary Perry implements the IPT concept for DoD via a memorandum. ^a
July 1995	Kaminski holds a DoD offsite entitled “Institutionalizing IPTs—DoD’s Commitment to Change.” ^b
November 1995	Rules of the Road: A Guide for Leading Successful Integrated Product Teams is published. ^b
December 1995	CAIV was initiated. ^a
December 1995	USD(A&T) issues guidance for making “class action” contract changes to existing contracts on a facility-wide basis. AKA Single Process Initiative (SPI). ^b
February 1996	<i>DoD Guide to Integrated Product and Process Development</i> , (Version 1.0) issued by the OUSD(A&T). ^a
February 1996	Director, Test, Systems Engineering, and Evaluation, publishes DoD Guide to IPPD, Version 1.0. ^b
March 1996	Update of the DoD 5000 Documents approved by the USD(A&T), DOT&E, and ASD (C3I). ^a
March 1996	The ODUSD(AR) produces the video <i>The Overarching and Working Level Integrated Product Teams</i> , and the OIPT-WIPT Information Guide. ^b
April 1996	DoD and Texas Instruments sign first SPI agreement for manufacturing standards for all its products. ^b
May 1996	DoD Acquisition Reform Day is held. ^b
July 1996	<i>The Defense Acquisition Deskbook</i> , first piece, released. ^b
September 1996	Kaminski’s memorandum provides guidance for dealing with specification or process changes on subcontracts (SPI). ^b
December 1996	The publishing of DoD 5000.2R, <i>Mandatory Procedures for Major Defense Acquisition Programs (MDAPs) and Major Automated Information Systems (MAIS) Acquisition Programs</i> . (Includes change 1). ^a
<p>^a All data and information obtained from Defense Systems Management College. (1997, December). A Model for Leading Change: Making Acquisition Reform Work (report of the 1996-1997 DSMC Military Research Fellows). Fort Belvoir, VA: Author.</p> <p>^b All data and information obtained from Defense Systems Management College. (1997, January-February). Acquisition reform —the end of the beginning. <i>Program Manager</i> (special issue), 26(1).</p>	

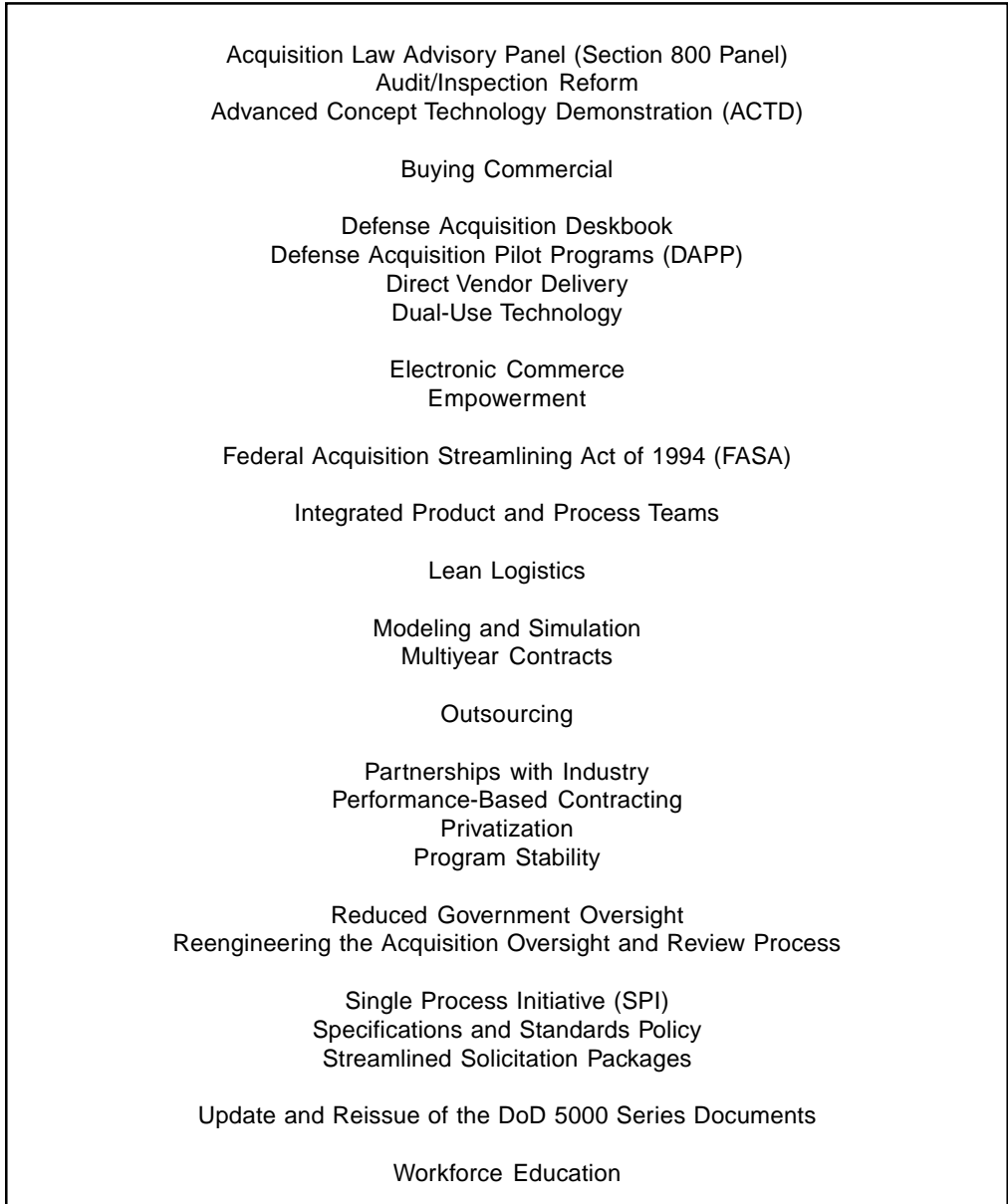


Figure 1. Alphabetical List of Acquisition Reform Initiatives

publishing *Rules of the Road: A Guide for Leading Successful Integrated Product Teams* in November 1995; the DoD AR Day of May 31, 1996; and the release of the *Defense Acquisition Deskbook* in July 1996.

From all of this it is possible to estimate when AR could first have had a practical effect in the field. For me, this date is on or about January 1996, although efforts continue beyond this date, and will into the future. January 1996 is the

estimated date that a sizable number of the acquisition workforce in the field could first be expected to put acquisition reform into practice. The date we are more interested in, however, is the first probable date that AR could affect a major defense acquisition program.

Prior research has shown that the average length of an Acquisition Category I (ACAT I) program in the engineering and manufacturing development (EMD) phase is 7.4 years (Gailey, Reig, and Weber, 1995). The Milestone III (MS III) decision generally concludes the EMD phase,

"In 1991, two significant events occurred that, in retrospect, embodied the "cultural change" so central to acquisition reform."

where design and cost-impact decisions determine more than 80 percent of the total life-cycle system costs. If a program's MS III is 6

months away, there is little chance AR changes will affect that program in EMD. Therefore, if acquisition reform first became effective within the field acquisition workforce on or about January 1996, it could only have an EMD effect on programs whose MS III Defense Acquisition Board (DAB) meeting was after July 1996. The MS III program date is important because that is the point at which we will measure the success of the then-existing DoD acquisition system.

The influence of two new initiatives on the effective date of AR for any particular program has not been discussed. These initiatives are the Advanced Concept Technology Demonstration Program (ACTD), and the Defense Acquisition Pilot Programs (DAPPs), both initiated in

1994. Ten ACTDs were initiated in fiscal year 1995, and 12 in fiscal year 1996. This is a very small number of programs when compared to the approximately 200 programs listed at any one time on the Office of the Secretary of Defense Test and Evaluation (OSD T&E) program oversight list. Extracts of a report on the lessons learned and recommendations on how to proceed with DoD-wide implementation of the DAPP initiative are shown in Appendix A. An exhaustive review of the effects of DAPP programs on acquisition efficiency is beyond the scope of this research, however. Other ongoing Office of the Secretary of Defense (OSD) review and analysis efforts explore this area in much greater depth.

Although not considered part of the acquisition reform program, the first event listed in Table 1 is worthy of discussion. In 1991, two significant events occurred that, in retrospect, embodied the "cultural change" so central to acquisition reform. The first of these, the February 23, 1991, revision to the 5000 Series documentation, modified an earlier version of the 5000 Series that required important user requirements like the operational requirements document (ORD) and initial operational capability (IOC), to be stated at MS I. Prior to February 1991, it was generally understood that these requirements were firm and not subject to change. In the revision, the new 5000 Series stated these and other requirements were subject to review and change if necessary at each Milestone. This allowed for a more reasoned approach to changing requirements as more data accumulated, and allowed the program manager to suggest changes in a more receptive environment. Changing user requirements if necessary

at stages in the development of a system became similar to the latter-day CAIV approach, albeit for a less focused reason.

Also in 1991, the commanders of the Service operational test activities (OTAs) realized that they no longer could operate in the mode of being the independent director of the “final exam,” the initial operational test and evaluation and the operational evaluation (IOT&E/OPEVAL) just prior to MS III. Rather, they initiated an earlier consultative role with the developing activity and, by means of early operational assessments, worked with the program managers to clarify what would be expected at the IOT&E/OPEVAL. This change in *modus operandi* occurred before the AR initiative of IPTs, but clearly achieves some of the same desirable objectives.

Because of these two activities, the introduction of a “forerunner CAIV” and a “forerunner IPT,” the year 1991 could be dubbed the year of the unheralded AR. Because this was a revision to the established 5000 Series system, the lead time to be effective in the field might be half that required for the later, entirely new, more expansive AR changes.

With the above rationale, the first programs that would be beneficially affected by AR would be those whose MS III DAB occurred in July 1996 or afterward. Therefore, the baseline of interest would be the success level of programs whose MS III DAB was prior to July 1996. This was the success level of the DoD acquisition system prior to AR changes. To measure program success, we will use the standard parameters of cost, schedule, and performance of a program during EMD. Both cost and schedule successes are obtained

by a review of a program’s selected acquisition reports (SARs) during EMD, and performance success will be based on a review of the program’s IOT&E/OPEVAL test reports and the associated beyond low-rate initial production (BLRIP) evaluation issued by the Director, Operational Test and Evaluation (DOT&E).

Fortunately, these data have been obtained for a different purpose over the past four years. A technical report has been

published detailing the concept and rationale behind the data obtained to date (Gailey, Reig, and Weber, 1995, pp. 3.2–3.3). For each of the parameters—cost, schedule, and performance—

“To measure program success, we will use the standard parameters of cost, schedule, and performance of a program during engineering and manufacturing development.”

we have assigned a success rating of from 5 (very good) to 1 (poor). The cost and schedule data from the Blue Books (no longer maintained) or the SARs are objective, using the DoD standard decrements of 15 percent in cost and 6 months in schedule. Performance success ratings were subjectively assigned using descriptive criteria that delineated between the five possible ratings. Operational test reports addressed operational effectiveness and operational suitability. For our research purposes, we have assigned a third rating, overall operational success, which results in three performance success rating from the Service OTA and three from the DOT&E on the OSD staff. In practice, the Service OTA conducts the operational test, but by law, the DOT&E

must provide an independent evaluation of the test adequacy and the operational effectiveness and suitability of the system under test.

For other purposes, we have gathered EMD cost, schedule, and performance data on programs during the years 1980 to 1996. We are in the process of obtaining the same data for programs as they complete their EMD development phase from 1996 on. The resultant success ratings are shown in Table 2, and the percentage equivalents of the success ratings are shown in Table 3. We have listed two periods from which to choose the performance success level of programs in EMD. The first line in Table 2 has the success ratings for all programs in the data base from 1980 to July 1996. The second line shows the results for the 4 years prior to the date AR could have influenced systems in EMD. The data base allows other, different periods to be used.

CONCLUSIONS

Here we have looked only at the cost, schedule, and performance success ratings of programs whose EMD phase ended prior to July 1996. After this date, AR efforts began to have an effect on major defense acquisition programs. This established the performance level of the DoD (pre-acquisition reform) acquisition system. The improvements in the acquisition system due to ARs can be measured in a few years using a similar methodology. It is probably too early to attempt to measure the improvements in cost, schedule, and performance success of the weapon systems being procured by the DoD acquisition system. But if the research database established at Defense Systems Management College continues to grow, in the future such data will be at hand.

We have not attempted to analyze any of the many other parameters of AR, such as value added due to a better educated workforce, etc. Figure 1 lists all or almost all of the initiatives considered to be part

Table 2.
Average Baseline Success Ratings - Acquisition Reform Baseline

M/S III Time Period and Number of Programs	Cost Success	Cost Percent Overrun	Schedule Success	Schedule Percent Overrun	IOT&E/OPEVAL Results			DOT&E BLRIP Evaluation		
					Effectiveness	Suitability	Overall	Effectiveness	Suitability	Overall
1980-Jul 96 (n=42)	3.6	31%	2.6	64%	4.0	3.7	4.0	3.8	3.6	3.8
Jul 92-Jul 96	3.5	46%	2.1	81%	4.3	3.9	4.2	3.7	3.7	3.8
Post Acquisition Reform Success										
Aug 96-ON	*	*	*	*	*	*	*	*	*	*
* = To be determined										

Table 3.
DSMC EMD Research - Success Ratings and Percent Equivalents

Success Rating 5 (very good) – 1 (poor)	Percent (%) Equivalents
5.0	100
4.8	96
4.6	92
4.4	88
4.2	84
4.0	80
3.8	76
3.6	72
3.4	68
3.2	64
3.0	60
2.8	56
2.6	52
2.4	48
2.2	44
2.0	40
1.8	36
1.6	32
1.4	28
1.2	24
1.0	20

of the AR program and may be of some interest in itself. There are other OSD analyses in existence that are much broader in scope and level of effort; these give the reader a broader look at AR improvements.

However, using the results achieved by the pre-AR DoD acquisition system in the 4 years before AR began, and converting the success ratings in Table 2 to percent

equivalents (Table 3), schedule success—approximately 42 percent successful in the old DoD acquisition system—could certainly be improved by AR efforts. Cost success at 70 percent should also be amenable to improvement. Future improvement in performance success, where the overall success level was 76–84 percent, may be more challenging.

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Raymond W. Reig, B.S., M.I.E., M.P.A., M.B.A., is a visiting research professor at DSMC. He is a graduate of the U.S. Naval Academy, the Air War College, and the DSMC Program Management Course. He was the first Chairman of the Test and Evaluation Department and now works within the College research division. His more than 40 years of experience spans military, government, and private aerospace industry.

(E-mail address: reigr@dsmc.dsm.mil)

APPENDIX A

REVIEW OF DEFENSE ACQUISITION PILOT PROGRAMS

The Defense Acquisition Pilot Programs (DAPP) was initiated as a result of the Federal Acquisition Streamlining Act (FASA) of 1994, which authorized the DoD to experiment with new ways of doing business to achieve the objective of buying systems better, faster, and cheaper. Seven DAPPs are reported on and data are being collected on what aspects of the program are successful, and by how much (metrics). Six of the seven programs are: Commercial Derivative Engine, Defense Personnel Support Center, Hercules (C-130J), Joint Primary Aircraft Training System, Fire Support Combined Arms Tactical Trainer, and Joint Direct Attack Munitions. This exhibit contains my impressions of data whose source is the 1996 *Compendium of Pilot Program Reports* issued by the Pilot Program Consulting Group.

The Commercial Derivative Engine (CDE) is produced by Pratt and Whitney and used on the C-17 aircraft. In 1980, McDonnell Douglas Aircraft Company selected the engine to power the C-17, and thus the program was well under way when it was nominated in July 1993 to be a pilot program to “demonstrate the advantages of using derivatives of commercial engines to satisfy military requirements.” This program may best exemplify the “buy commercial” initiative of acquisition reform.

The Defense Personnel Support Center (DPSC) began reengineering its business practices in 1989, and the

designation as a pilot program facilitated further expansion of these initiatives.

Continued participation as a regulatory DAPP allows evaluation of statutory relief provided commercial item acquisition by FASA.... The 1995 report highlighted the fact that regulatory relief by itself was insufficient to make a dramatic impact.... It is the acquisition reform environment itself that has contributed the most to the continued success...of these initiatives.

This pilot program may exemplify the difficult-to-measure improvements resulting from a DoD acquisition “cultural change.”

The Hercules (C-130J) was designated a DAPP program in September 1995 and “serves as the first major procurement that can draw upon the new commercial practices implemented by FASA.” This ACAT II program has developed a comprehensive set of specific and bridge metrics for overall DAPP program guidance. These metrics primarily address business practice issues, but contain two performance metrics. The business practice metrics appears to have been achieved very nicely, but the two performance objectives are to be determined.

The Joint Primary Aircraft Training System (JPATS) is an ACAT IC program whose 9-year engineering management and development phase contract was signed in February 1996. “JPATS specific metrics were developed...to reflect the

unique commercial aspects of the program...and include:

- regulatory and statutory relief,
- program costs,
- RFP preparation and content,
- funding stability,
- ground-based training system,
- earned value reporting system,
- program office staffing,
- contractor team composition, and
- contract administrative services.”

Again, these metrics primarily address business aspects. The two performance bridge metrics used are Anthropological Accommodation, and Birdstrike Capability @ 270KTAS.

The Fire Support Combined Arms Tactical Trainer (FSCATT) RFP was designed to incorporate DAPP acquisition reform initiatives.... The contract, fixed-price, 7-year period of performance was awarded in June 1995. “As a DAPP, [the program] is intended to demonstrate that the concepts of dual-use technology could be applied to a defense program in addition to demonstrating the capability of integrating commercial and nondevelopmental item components into a complete system.” This is an ACAT III program. The program metrics consist entirely of business practice parameters, with no performance metrics, except for the number of work hours for quality assurance and

test and evaluation. Business metric results to date are good, with cost savings estimated at 13.5 percent and a planned schedule reduction of 33 percent.

The Joint Direct Attack Munitions (JDAM) may be the most discussed and closely followed DAPP program to date.

The nature of JDAM suggests that the major savings...would accrue in production rather than development.... The [program] is intended to demonstrate the prime contractor and key subcontractors are able to develop the JDAM using practices, ...from their commercial sector business base.... Finally, the program is expected to meet the planned development schedule without the process delays that have been incurred on other major defense programs.

JDAM is an ACAT I program whose Phase I EMD effort began in April 1994. Phase II EMD started in October 1995 with the down-select to one contractor. The Phase II (EMD) contract is CPFF with a period of performance of approximately 3 1/2 years. “Thus, the cultural change provided by pilot programs designation had the greatest impact on JDAM and resulted in the implementation of [several new] business practices.” The cost metric includes total program costs, but Table 1.3.2 shows Phase II EMD (RDT&E) cost avoidance’s to total \$49.8M, including \$7.3M attributable to reduced wind tunnel tests, \$30M of reduced open air test A/C and test units, and \$12M due to schedule acceleration.

In discussing program operational performance and cost, the report states

“...large reductions in unit price were possible by trading other ‘performance’ requirements.” Two meaningful performance metrics—end game accuracy and reliability—are being tracked. The JDAM program 1996 status report concludes:

The most dramatic results of the JDAM acquisition reform efforts are the reported reduction in total program costs of \$2.96 billion Then Year (TY) over a 10-year production cycle, a 39 percent reduction in contract administration hours to date, and a 35 percent reduction in development time. Clearly JDAM results to date demonstrate the applicability of commercial practices and other innovative management practices to major defense acquisition programs and the efficiency gains that can be achieved. As reported by the program office, acquisition reform combined with common-sense management is

enabling JDAM to realize substantial in-house efficiency gains, reduce contract costs, and improve cycle times.

CONCLUSIONS

Have these Defense Acquisition Pilot Programs had an effect on the selection of the cost, schedule, and performance baseline of the pre-AR DoD acquisition system? I believe not, since two of the DAPPs pre-date acquisition reform considerably, three are not ACAT I programs, one contains possibly minor performance metrics, and three contain no performance metrics at all. By contrast, the entire thrust of this article is the combined measurement of cost and schedule data (from SARs), and performance data (from operational testing reports) of ACAT I programs in EMD prior to the effective start date of acquisition reform. A more reasonable comparison would be DAPP program performance as measured by other “standard” programs being developed in the current acquisition reform era.

